

ILLINOIS POLLUTION CONTROL BOARD
September 1, 1977

ELECTRIC ENERGY, INC.,)
)
) Petitioner,)
)
)
) v.) PCB 75-106
)
)
) ILLINOIS ENVIRONMENTAL PROTECTION)
) AGENCY,)
)
) Respondent.)

MR. JOHN W. ROWE, ISHAM, LINCCLN & BEALE and JOHN C. LOVETT, LOVETT,,
LEWIS, JOHNSON & SHAPIRO, APPEARED ON BEHALF OF ELECTRIC ENERGY,
INCORPORATED;
MR. MICHAEL GINSBERG, APPEARED ON BEHALF OF THE ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY.

OPINION AND ORDER OF THE BOARD (by Mr. Goodman):

This matter is before the Board on a Petition filed February 28, 1975 by Electric Energy, Inc., (Electric Energy) requesting variance from Rule 204(e) of the Board's Air Pollution Regulations (Chapter 2) and certain other rules with respect to its steam-electric generating station at Joppa, Illinois.

In its original petition Electric Energy proposed to use an Intermittent Control System (ICS) and to control plant operation through short-term load reductions to prevent the Joppa Station from causing violations of air quality standards for sulfur dioxide. The Illinois Environmental Protection Agency (Agency) recommended that the petition for variance be denied. Hearings were held in this matter on May 14 and May 15, 1975 and the issues were briefed by both parties in June, 1975. Prior to final action on this petition by the Board and in response to Agency objections to the proposed ICS System, Electric Energy filed an amendment to its variance petition on May 6, 1977. In its Amended Petition

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Electric Energy proposes to implement a fuel blending program and to construct and place in service three new tall stacks. In its consideration of this matter, the Board will address only the May 6, 1977 Amended Variance Petition filed by Electric Energy.

On May 27, 1977 the Agency filed its Amended Recommendation concerning Electric Energy's Petition. The Agency states that it worked closely with Electric Energy in the development of the proposed compliance plan for the Joppa plant and that this plan will achieve compliance with the emission limit rule of 204(e) of Chapter 2 as expeditiously as possible.

In addition to the ICS Control System and the presently proposed tall stack-fuel blending program, Electric Energy has examined a wide range of alternative compliance programs including flue gas desulfurization, use of low sulfur fuel, and Illinois coal beneficiation by intensive washing. Coal supplier experiments indicate that Illinois coal is not capable of being beneficiated by washing processes to the extent that the Illinois sulfur emission regulation can be met at the Joppa Station with the current chimney height. The use of low sulfur fuel was rejected since tests conducted by Electric Energy in 1975 indicated a unit derating of about 25%, precipitator performance degrading of about 18%, a 5% reduction in boiler efficiency, an increase of 46% in the quantity of coal required per KWH generated and reduction of 19% in capacity of a coal pulverizer to support the generation operation would result. (Amended Petition, p.9).

Of particular concern to Electric Energy is the derating of its relatively new (1972) precipitators whose performance generally would determine the minimum sulfur content that could be tolerated by Joppa Station without serious derating of the Station's generating capacity. Electric Energy's Engineering Consultants, Sargent & Lundy, reviewed possible means of compensating for the reduced precipitator performance including modification of the existing cold side precipitators to operate as hot side precipitators, replacing existing precipitators with new hot side precipitators, and adding flue gas conditioning to the existing precipitators. They found that the existing precipitators could not be operated as hot side precipitators, not only from a structural capability and integrity standpoint, but also from the standpoint of physical size of existing units with respect to the gas contact times necessary for proper collection of particulate matter (Amended Petition, p.13). New hot side precipitators were rejected due to the physical limitations of the Station with regard to the size of its hot side precipitator.

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The physical situation at Joppa also was the reason flue gas conditioning was rejected, as the area of injection and distribution of chemicals is relatively small as the Joppa Station configuration now exists. In addition, Electric Energy alleges that the cost of derating the Station's capacity would be prohibitive (Amended Petition, p.11). Electric Energy has rejected flue gas desulfurization as a viable alternative due to the estimated expenditure of \$80,000,000 for a power plant whose useful life might be as short as 12 years with a 15 to 20 million dollar annual operating cost (Amended Petition, p.8).

Although the Board does not necessarily agree with Electric Energy's conclusions concerning the program proposed in the Amended Petition, the proposed program appears suitable. The projected results of the program not only indicate the achievement of compliance with Rule 204(e), but the projection used a stack height of 407.3 feet, which is the suggested guideline of two and a half times the height of adjacent structures. The actual stacks, however, are programmed to be 550 feet tall, thus injecting a conservative factor in the projected results. In addition Electric Energy will establish and maintain an ambient air quality monitor within two to three miles of the Joppa Station at a site agreed upon between the Agency and Electric Energy. This new monitor, along with existing monitors, will provide data which the Agency and Electric Energy may use to verify their expectations and models. Electric Energy will, of course, continue to follow developments with respect to sulfur dioxide emission control although they do not believe a research program can be justified considering the advancing age of the Joppa installation.

There was considerable testimony presented at the hearings held pursuant to the original variance petition concerning the effect of emissions from Joppa Station on the area's air quality. Electric Energy's case primarily rests on modeling done by Sargent & Lundy, its Consulting Engineers (Electric Energy Exhibits 1 through 20). That modeling shows present compliance, using 2.7% sulfur content coal, for the Joppa Station, on both the three hour (secondary) and twenty-four hour (primary) standards (Exhibit 5, 12, and 20). The Agency, at that time recommending denial of the variance, presented much evidence, by way of cross-examination, attacking the validity of Electric Energy's modeling, although apparently never stating that Electric Energy was causing or contributing to a violation of the ambient air quality standards.

The Agency's original allegations concerning violations of twenty-four hour and three hour standards in the area were based primarily upon theoretical meteorological conditions which testimony and exhibits indicate are unlikely to occur (R.72). In response to the questions raised by the Agency, Electric Energy repeatedly pointed to the conservative nature of its model and showed the unlikelihood that the effects of Electric Energy and another nearby power

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plant could work together to produce any of the violations that were shown. The Board finds that the weight of the evidence indicates that it is not likely that Electric Energy is now causing or contributing to violations of the air quality standards in the area.

The Board finds that Electric Energy has made a good faith effort in attempting to develop a method whereby Joppa Station may achieve compliance with Rule 204(e). After investigating many different methods of compliance, especially with regard to the age and physical configuration of the Joppa Station, they have developed a relatively economical and efficient program that should culminate in compliance by October, 1978. The Board finds that denial of this variance would subject Electric Energy to an arbitrary and unreasonable hardship and will therefore grant the variance requested for the Joppa Station until October 31, 1978, under certain conditions.

This Opinion constitutes the findings of fact and conclusions of law of the Board in this matter.

ORDER

It is the Order of the Illinois Pollution Control Board that Electric Energy, Inc., be granted variance from Rules 103, 104 and 204(e) of Chapter 2 of the Board's Regulations (Air Pollution) for its Joppa Station until October 31, 1978 under the following conditions:

1. Electric Energy shall execute the compliance program contained on page 9, 10, and 11 of Exhibit 9 of its May 6, 1977 Amended Variance Petition which Petition is hereby incorporated by reference as if fully set forth herein.
2. Electric Energy shall purchase and install an ambient air monitoring station at a location approved by the Agency no later than October 31, 1978.
3. Within 30 days of the adoption of this Order, Electric Energy shall execute and forward to both the Illinois Environmental Protection Agency, 2200 Churchill Road, Springfield, Illinois 62706 and the Pollution Control Board a Certification of Acceptance and Agreement to be bound to all terms and conditions of this Order.

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The form of said certification shall be as follows:

CERTIFICATION

I (We), _____ having read and fully understanding the Order of the Illinois Pollution Control Board in PCB 75-106 hereby accept said Order and agree to be bound to all of the terms and conditions thereof.

SIGNED _____

TITLE _____

DATE _____

I, Christan L. Moffett, Clerk of the Illinois Pollution Control Board, hereby certify the above Opinion and Order were adopted on the 13th day of September, 1977 by a vote of 5-0.

Christan L. Moffett
Christan L. Moffett, Clerk
Illinois Pollution Control Board

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